

is described, on p. 91, as *Thuya excelsa*, a name unknown to botanists. The author is unaware that it is already described in the preceding page under its correct name, *Cupressus nootkatensis*. The note on p. 77 about Douglas fir is misleading. The two kinds of this timber, which are distinguished by the Western lumberman, are "red fir" and "yellow fir," the colour and quality varying with the rate of growth of individual trees of the same species. The statement that only 500 *Wellingtonia* trees are now living is quite inaccurate, as this species occurs in countless numbers in the southern part of its area in the Sierra Nevada.

Many more instances might be given of the carelessness with which this compilation has been made. These errors detract seriously from the value of the book to the student. The price is cheap, only six shillings for 350 pages and 54 illustrations; and the practical man, for whom the work is intended, may find it worth the money, in spite of its inaccuracies.

OUR BOOK SHELF.

Biology and its Makers; with Portraits and other Illustrations. By Prof. W. A. Locy. Pp. xxvi + 469. (New York: Henry Holt and Co.; London: G. Bell and Sons, 1908.) Price 10s. 6d. net.

THIS is a carefully executed historical introduction to the study of biology, and should prove very useful to students. Its aim is to sketch the broad features of biological progress, "and to increase the human interest by writing the story around the lives of the great leaders." Prof. Locy has shown shrewd judgment and a praiseworthy restraint in his selection of subjects, the result being that the student can get from this book a general view of the development of biology, yet with enough concrete illustration and biographical information to be vivid. The author has evidently gone to the original documents, and he has had his reward; he has given us a book full of fresh interest and suggestion. In the course of years Prof. Locy has made a large collection of interesting portraits of biologists, many of which adorn the walls of his laboratory at Evanston, and point a moral too. Of this collection he exhibits a fine sample in this volume. Some of the rarer ones are unfamiliar even to biologists, and have been discovered only after long search in libraries.

The book is divided into two sections. "In the first are considered the sources of the ideas—except those of organic evolution—that dominate biology, and the steps by which they have been moulded into a science." The succession of chapters is as follows:—Aristotle and his foundations; Vesalius and the overthrow of authority in science; Harvey and experimental observation; the introduction of the microscope and the progress of independent observation; the progress of minute anatomy; Linnæus and scientific natural history; Cuvier and the rise of comparative anatomy; Bichat and the birth of histology; the rise of physiology—Harvey, Haller, and Johannes Müller; Von Baer and the rise of embryology; the cell-theory—Schleiden, Schwann, and Schultze; protoplasm the physical basis of life; the work of Pasteur, Koch, and others; heredity and germinal continuity—Mendel, Galton, and Weismann; and the science of fossil life (a bad title). The second part of the book deals with the evolution theory, and the last chapter contains an interesting retrospect and prospect.

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It is difficult to avoid misprints when dealing with many names and titles; we may note in illustration the title of Leydig's treatise of 1864 (p. 102), Weissmann (p. 109), Fleming (p. 256), Carl Pearson (p. 318), Neumayer (p. 352), Downs as Darwin's home (p. 426). Is it the case that Darwin spoke of "incredibly dull lectures" at Cambridge? We doubt if it can be said that Lamarck was the first to use a genealogical tree to express relationship of types, for was not Pallas earlier? But these are trifling blemishes in a wholesome and interesting book, and we offer Prof. Locy our congratulations.

J. A. T.

Psychologie als Grundwissenschaft der Pädagogik. Ein Lehr- und Handbuch unter Mitwirkung von Seminardirektor Dr. K. Heilmann, herausgegeben von Direktor Dr. M. Jahn. Fünfte verbesserte und vermehrte Auflage. Pp. xii + 527. (Leipzig: Verlag der Dürr'schen Buchhandlung, 1907.) Price 7.50 marks.

"The psychological principles useful to the teacher could be written on the palm of the hand." This dictum of the psychologist who is himself the most brilliant teacher of his subject to the English-speaking world rises in the mind by force of inevitable contrast as one takes up this portentous volume.

Five hundred and six large and well-filled pages are the space which Dr. Jahn demands for the exposition of the psychology that he and his colleague regard as the necessary scientific foundation for the professional studies of German pedagogues—and their estimate has been endorsed by their public to the extent of five editions. No one—at least in this country—could pretend that the knowledge of all that is contained between these covers is necessary to professional salvation. As Mr. Benson has said, "A brisk, idle man with a knack of exposition and the art of clear statement can be a scandalously effective teacher." But if we are to have practitioners of the art of teaching comparable in point of professional culture with our engineers, our architects, and our medical men, there is no doubt that the topics discussed in this volume must become much more commonly studied among us than they are at present.

To the student who reads German with fair facility and is not in a hurry, Dr. Jahn's book may be warmly recommended. It is lucidly, though not brilliantly, written; it is clearly and sensibly arranged, though it preaches no strongly individualised doctrine; it is encyclopaedic in range, and abreast of the present development of the subjects it touches. The notes at the end of each section, and the select bibliography at the end of the book, will be found a very useful guide to more extended reading—though the English and French works recommended appear to be confined to those that have been translated into German.

A Brief Course in Elementary Dynamics for Students of Engineering. By Ervin S. Ferry. Pp. xi + 182. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd., 1908.) Price 5s. net.

A WORK on elementary dynamics written especially for engineers gives one reason to expect something rather different from the usual text-book on purely mathematical lines, but the present work does not appear to have any particular interest for an engineering student. We are asked to consider the usual problems of blocks sliding down inclined planes, particles moving in circles, ladders leaning against walls, and, in fact, we find all the usual paraphernalia which the mathematical schoolmaster has invented for teaching the subject.

The work must therefore be regarded quite apart

from the special function which it claims by its title.

It appears to be an orderly, well-written account of the principles of dynamics, but rather over-burdened with formulæ, as, for instance, where a whole page of mathematics, in small print, is devoted to proving that the reading of a weigh beam of an ordinary platform scales is not affected by the position of the load.

Apart from these minor blemishes, and under the limitations mentioned above, the work is a favourable specimen of the American college text-book.

E. G. C.

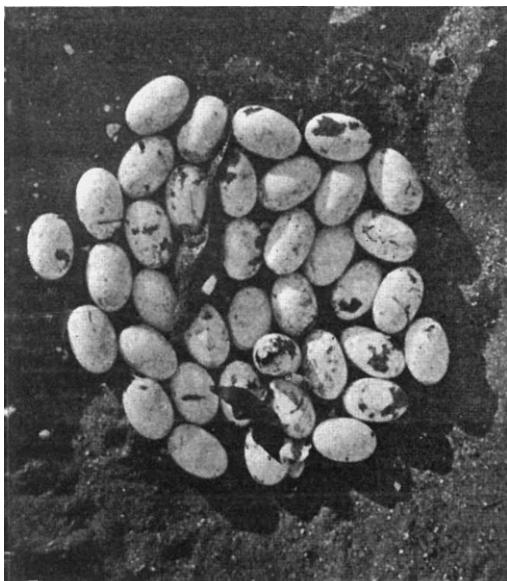
LETTERS TO THE EDITOR.

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A Crocodile's Nest.

THE accompanying photograph was taken in the bed of the river Rahad, south-west of Gallabat, and only a few miles west of the Abyssinian frontier, in May, 1907. This tributary of the Blue Nile begins to come down in flood in about June, continues to flow until the beginning of winter, and after this the bed is left dry, with the exception of a series of pools in the sandy river-bed.

I came across the nest through finding a depression in the sand about 4 feet above the level of a neighbouring



pool, and a number of sinuous tracks leading down to the water's edge at once suggested a crocodile's nest. The hollow was about 1 foot deep, and the eggs were 2 inches or 3 inches below the sand at the bottom of it. My guide soon pulled out a number of eggs and young crocodiles, which were quite willing, though not powerful enough, to sample one's fingers. The find was of interest, and next evening, on returning to photograph it, I was surprised to find another depression about a yard further along the bank, and, covered with sand at the bottom of this, we found the eggs and crocodiles shown in the picture. The eggs were of the usual cylindrical shape, and about 3 inches long. The crocodile on hatching is about 10 inches long, perfectly formed, and makes a noise like the croaking of a frog. There is generally a blood-like stain about the place that would correspond to the navel in higher animals.

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For the purpose of photography the eggs were taken out of the sand and laid in the hollow. A crocodile is seen just hatching out, and another is resting on the eggs. The shells are hard, and the dark patches on some of them are due to adhering sand.

About a yard away, again, the presence of another nest was made evident by the croaking of young crocodiles beneath the sand, and it would appear that this enables the parent to know when to release its young by excavating a hollow to such a depth that only a thin covering of sand is left over the eggs.

The first nest of eggs was not counted; a number of crocodiles had already escaped into the water, about eight were hatching out, and there were a good many eggs besides. In the second nest there were thirty-nine eggs, as the photograph shows, and the first probably contained about the same number. The third nest was not uncovered. There is no definite evidence for ascribing all three to one parent, but in view of their being so close together, and the young hatching out within two days in the different nests, there is a strong presumption in favour of doing so. If this is the case, the total number of eggs laid by one individual can hardly have been less than a hundred, and among the two batches seen only one egg was found to be addled.

I do not know whether nesting is confined to a particular period of the year, but in the case of a variable river like the Rahad there is a considerable risk of the eggs being either washed away or left at a distance by the retreating water, except during the late winter and spring months.

Young crocodiles, up to about a yard in length, appear to be far more active than the older ones. They leave the pools, climb out of the river channel, and may be met at a distance of fifty yards away. They are able to run at a considerable pace. The older ones are generally seen floating about or lying on the banks close to the water.

Khartoum, March 3.

G. W. GRAHAM.

A Winter Retreat for Snails.

SOME of the reaction phenomena of *Helix aspersa* would probably account for the presence of thirty-seven specimens in an empty tea-pot as described by Prof. McKendrick in NATURE of March 4.

This species is, as is well known, *negatively phototropic*—"seeks" dark places—and is also, especially at hibernation, *stereotropic*, "attracted by surfaces."

The empty tea-pot lay on its side by an herbaceous border, where many snails would be hidden from view. In November, when preparing to hibernate, these snails would wander restlessly, and by the combined reactions would find their way "with mechanical certainty" into the dark cavity of the tea-pot, and there come to rest. The number collected together in the tea-pot would increase, as, on arriving in the cavity, movement in each individual would cease; and, moreover, the individuals would cling together.

As a result, the tea-pot would act like a trap in which the snails were caught, and where they would remain until metabolic changes in their own bodies made them restless and compelled them to move about.

W. HOSKYNNS-ABRAHALL.

The Golden Fleece.

In the review of Dr. Bowman's book on "The Structure of the Wool Fibre, &c." (NATURE, March 4), there occurred the statement that the introduction of the domestic sheep into Greece was "probably enshrined in the legend of the golden fleece." Strabo, however, long ago gave a plausible explanation of this legend in stating (Book xi., ii, § 9): "The Soanes occupy the heights of Caucasus above Dioscurias" (the present Iskuria, at the mouth of the Kodor in Abkhasia). . . . "In their country the winter torrents are said to bring down even gold, which the barbarians collect in troughs pierced with holes and lined with fleeces; and hence the fable of the golden fleece."

FELIX OSWALD.

Nottingham.